plant with serrate leaves and many scattered heads.

Achaetogeron corymbosus Larsen, sp. nov.

Herbaceus 20–40 cm altus dense breviterque cinereo-hirsutus et minute glandulari-puberulus; caules erecti ramosi ramis apice corymboso-ramosis; folia caulina oblanceolata sessilia supra serrata 5 cm longa 1.5 cm lata, superiora ad bracteas sensim reducta; folia infima non visa; pedunculi 0.5—1 cm longi; capitula 1–1.5 cm diam. (radiis inclusis); involucri 2-seriati phyllaria lineari-lanceolata acuminata minute glandulari-pubescentia et sparsissime hirsuta, margine angusto scarioso leviter lacerato; radii albi; pappus minutus coroniformis vel annularis laceratus cum setis paucis caducis interioribus; achenia basi late callosa dense pubescentia pilis longis apice rectis.

JALISCO: Canyons, moist rocks, Tuxpan, February 1904, *Purpus* 527 (G, type).

The serrate leaves, crowded corymbs, and cinereous aspect are characteristic.

Achaetogeron garciae (Blake) Larsen, comb. nov.

Bellis garciae Blake, Contr. U. S. Nat. Herb. 22: 593. 1924.

Still known only from the type, *P. Ibaña García* 310 (U. S. Nat. Herb. 1032782) from the State of Durango, alt. 100 m.

ENTOMOLOGY.—*Notes and descriptions of Nearctic Hydroptilidae (Trichoptera).*[1]

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In the caddisflies of the family Hydroptilidae there undoubtedly exists a number of genera that bear their closest relationship with forms known from other regions and with which they have not yet been associated. Two such cases are outlined in this paper, and in each the geographic limits of the genera involved are extended into another continent. During the investigation of these cases some interesting morphological considerations have arisen, and as a result a few suggestions regarding terminology are made in this paper.

I am greatly indebted to Dr. G. T. Riegel, University of Illinois, and to Dr. H. K. Gloyd, Chicago Academy of Sciences, for making material available to me for study, and to Dr. D. G. Denning for the loan of type material of some of the species studied. Types of new species described in this paper are deposited in the collection of the Illinois Natural History Survey.

TERMINOLOGY

In reviewing the terminology I have used for parts of the male genitalia of Hydroptilidae, one change and one addition seem indicated in the interests of clarity and structural identification.

Subgenital plate.—In most genera of Hydroptilidae there is a variously shaped, mesal structure usually occurring above or between the claspers. In *Hydroptila*, Fig. 6, *sp*, and *Neotrichia* this structure is platelike and bears at its apex a pair of setae. In *Oxyethira* and *Stactobiella* what appears to be this same structure is heavily sclerotized, frequently arched, and assumes a variety of shapes in different species; in these two genera I have heretofore called this structure the tenth tergite (Ross, 1938, 1944). The tenth tergite, however, must be above the aedeagus, whereas in the structure in question, Fig. 1*A*, *sp*, it is situated below the aedeagus. It may be a sort of guide for the aedeagus or it may assist in the coupling action during copulation. Because it lies below the aedeagus and because its exact homology is obscure, I am proposing that this plate be called the *subgenital plate*.

Bracteole.—In quite a number of Hydroptilidae, especially in *Stactobiella*, there occurs a structure associated with the area dorsad of the base of each clasper. In some cases, Fig. 1, *br*, this appears as a small structure at the base of each clasper, in others, Fig. 2, *br*, the structure is larger and more conspicuous than the clasper and probably usurps its function. For this I propose the term *bracteole*. Here again the homology is difficult to determine, but I believe that the term will be a useful one for purposes of taxonomic description.

[1] Received March 8, 1948.

Genus Stactobiella Martynov

Stactobiella Martynov, Pract. Ent. 5: 58. 1924. (Genotype, monobasic, *Stactobia ulmeri* Siltala.)

Tascobia Ross, Bull. Illinois Nat. Hist. Surv. 23: 124. 1944. (Genotype, by original designation, *Stactobia palmata* Ross.) *New synonymy.*

Comparing Nearctic species of this genus with illustrations of Palearctic species shows that not only are the two genera synonymous but also that two Nearctic forms each have their closest known relative in the Palearctic fauna. *S. palmata* (Ross) is very similar to Martynov's illustrations of *biramosa* Martynov, the former having the claspers short and ovate, constricted at base, and the stalked process tridentate, the latter having the claspers slightly longer and parallel-sided, and the stalked process bidentate. In each the aedeagus is simple and tubular. The Nearctic species *delira* (Ross) is similar to the Palearctic *ulmeri* (Siltala) and *risi* (Felber), especially in regard to the curved, fingerlike subgenital plate, but exhibits marked differences in the shape of each structure. The Nearctic *brustia* Ross is not allied closely to any of the other species and forms a species complex of its own. Thus, not only is *Stactobiella* as a genus Holarctic in distribution, but two of its three component phylogenetic units are truly Holarctic also.

To assist in identifying these species, a key is given to the males of these six species, which comprise the known world fauna of the genus. I have taken characters of the Palearctic forms from illustrations in the literature, cited in the key.

KEY TO SPECIES OF STACTOBIELLA MALES

1. Claspers apparently fused to form a ventral plate bearing three whiskerlike brushes of setae; aedeagus with apex curved and bent into shape of a crook (Ross, 1938, p. 115, fig. 22). Nearctic (Wyoming)....*brustia* (Ross)
   Claspers not fused, either elongate or biscuit-shaped....2
2. A curved process, the bracteole, arising above each clasper, longer than the clasper and divided at apex into two or three fingerlike branches, Fig. 2; subgenital plate short and wide....3
   Bracteole represented by only a small process associated with a lateral clump of setae, clasper long, parallel-sided or tapering to apex; subgenital plate long and fingerlike, often curved or angled, Fig. 1....4
3. Bracteole having apex divided into two "fingers" (Martynov, 1934, p. 159, fig. 105). Palearctic (Russia).....*biramosa* Martynow
   Bracteole having apex divided into three "fingers," Fig. 2. Nearctic (central U. S. A.) .....*palmata* (Ross)
4. Apical portion of aedeagus divided into one mesal and two lateral lobes, Fig. 1*A*. Nearctic (northcentral U. S. A.).....*delira* (Ross)
   Apical portion of aedeagus tubular, much as in Fig. 2....5
5. Apical margin of clasper truncate and slightly oblique (Felber, 1908, p. 721, fig. 2). Palearctic (Switzerland).....*risi* (Felber)
   Apical margin of clasper rounded, the clasper tip narrow (Martynov, 1934, p. 159, fig. 103). Palearctic (northern Europe)..... .....*ulmeri* (Siltala)

Genus Oxyethira Eaton

Argyrobothrus Barnard, Trans. Roy. Soc. South Africa 21: 392. 1934. (Genotype, monobasic, *A. velocipes* Barnard.) *New synonymy.*

Barnard's illustrations of pupal case, venation, and genitalia of both sexes leave no doubt that *Argyrobothrus velocipes* is a typical member of *Oxyethira*. The genus as such has not been recorded previously from central or southern Africa.

Oxyethira arizona, new species

The wide, curved lateral process of the aedeagus and the long, ventral internal projection of the base of the ninth segment show a relationship of this species with *pallida* (Banks) and *maya* Denning, but *arizona* differs from both of these in the straight apical portion of the aedeagus (this part is angled and twisted in *pallida* and *maya*) and the elongate lateral processes of the eighth tergite.

Male.—Length from front of head to tip of wings, 2.5 mm. Color entirely pallid or straw color, with an annulation of a darker shade on some segments of the antennae and some darker areas on the front wings. General structure typical for genus. Seventh sternite with a sharp curved apical process. Genitalia as in Fig. 4. Eighth tergite divided into a pair of lateral lobes, the lower margin of each produced into a long, smooth, sharp process, the left one curved dorsad at tip, as shown, the right one curved slightly ventrad; the base of each lobe bears abundant long setae, but the projecting portion is without vestiture. Eighth sternite forming the lateral and ventral part of a ring, trapezoidal from lateral view, the apical margin gently curved on the meson. Ninth tergite membranous. Subgenital plate moderately

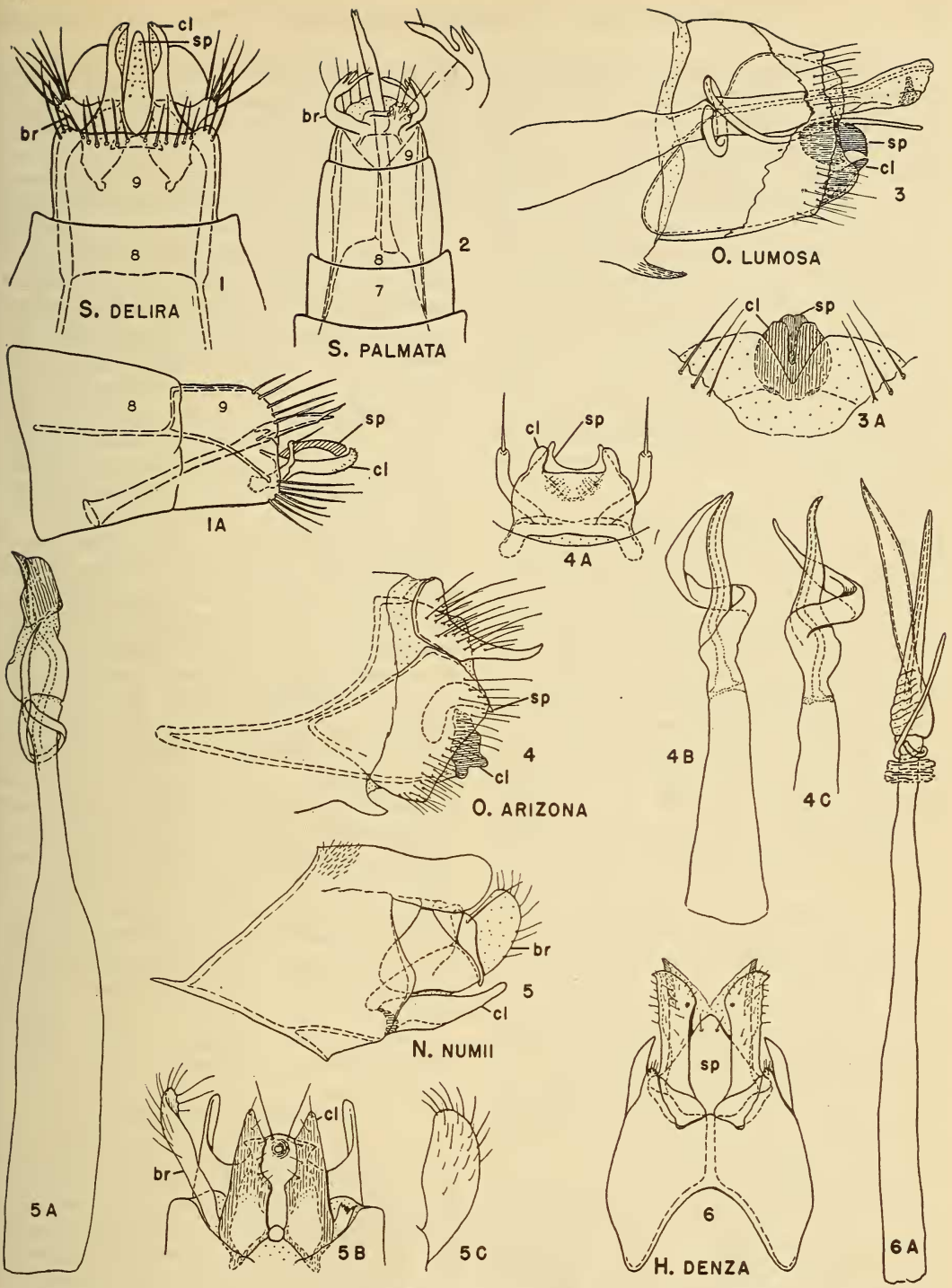

FIG. 1.—*Stactobiella delira*, male genitalia, ventral aspect; 1*A*, same, lateral aspect. FIG. 2.—*Stactobiella palmata*, male genitalia, ventral aspect. FIG. 3.—*Oxyethira lumosa*, male genitalia, lateral aspect; 3*A*, apical portion of male genitalia, ventral aspect. FIG. 4.—*Oxyethira arizona*, male genitalia, lateral aspect; 4*A*, claspers and associated structures, ventral aspect; 4*B* aedeagus; 4*C*, aedeagus as seen at right angles to long axis of 4*B*. FIG. 5.—*Neotrichia numii*, male genitalia, lateral aspect; 5*A*, aedeagus, 5*B*, claspers and associated structures, ventral aspect; 5*C*, bracteole. FIG. 6.—*Hydroptila denza*, male genitalia, ventral aspect; 6*A*, aedeagus. Abbreviations: *br*, bracteole; *cl*, clasper; *sp*, subgenital plate.

heavily sclerotized, lateral aspect evenly curved to form about a quarter of a circle, ventral aspect, Fig. 4*A*, incised at apex to form a mesal arcuate area on each side of which is a short fingerlike process. Claspers fused on meson, very deep dorsoventrad, the ventral apical margin bearing a fingerlike projection on each side with a truncate edge between them. Style sinuate, membranous, and tipped with a long seta. Aedeagus, Figs. 4*B* and *C*, with base only a little longer than apex; neck only indistinctly set off: and apex divided at base into a tapering, slightly twisted central portion bearing the penis, and a wide, ribbonlike twisted process which makes a complete circle around the central portion, and which is concave on its inside surface.

Female.—Size, color, and general structure similar to male. Genitalia simple; tenth tergite fairly wide at base, tapering to a round apex; ninth tergite with a narrow, spiculate, dorsoapical hump and with straight internal apodemes. Spermatheca and its associated structures similar in most respects to *pallida*, but differing in having the ventral bar of the spermatheca arcuate but only moderately wide.

Holotype, male.—Superior, Pinal County, Ariz., taken at light in Boyce Thompson Arboretum, May 17–24, 1946.

Allotype, female.—Same data as for holotype.

Paratypes.—Same data as for holotype, 2 ♂, 9 ♀.

Oxyethira pallida (Banks)

Oxyethira cibola Denning, Can. Ent. 79: 12. 1947. *New synonymy.*

The most outstanding character of this species is the more slender of the two curved lateral processes of the aedeagus. This is absent in *maya* Denning; the other apical structures of the aedeagus are subject to twisting in both species and, in comparably twisted specimens, are remarkably similar in both.

Collecting generously afforded by Dr. Swingle around artificial fish ponds near Auburn, Ala., brought in several catches of this species. It is probable that it is the first species of caddisfly to invade these ponds after they are filled.

Oxyethira lumosa, new species

This species is most closely related to *grisea* Betten and *novasota* Ross on the basis of simple eighth segment and the long, curled spiral process of the aedeagus. From both species and others in the genus it differs markedly in the small, compact, ovate ventral aspect of claspers and subgenital plate, Fig. 3*A*.

Male.—Length from front of head to tip of wings, 2.5 mm. Color a salt and pepper mixture of cream and brown. General structure typical for genus. Seventh sternite with a sharp apicomesal spur. Genitalia as in Fig. 3. Eighth segment almost cylindrical, the apical margin slightly roughened and its ventral aspect U-shaped. Ninth segment with ventral portion forming only a rounded internal lobe extending only slightly into the seventh segment. Ninth segment also having no prominent marginal structures, the dorsal portion membranous and the ventral portion membranous and emarginate to form a deep V around the base of the claspers. Subgenital plate with lateral aspect forming a stout, hook-shaped structure with a wide base and stout, curved apex with a sharp tip, and with ventral aspect ovate and slightly incised on meson. Claspers fused to form an ovate plate deeply incised on meson from apex to over half the distance to base, Fig. 3*A*. Aedeagus not very long, base only about as long as apex, and the neck indicated by a shallow constriction and the origin of the spiral process. This structure is stout and long, and encircles the aedeagus one and a half times, the first circle making almost a ring and the other half circle made while extending posteriad to the apex of the aedeagus. Apex of aedeagus cylindrical, semimembranous, and with a sclerotized, sharp, triangular sclerite placed transversely across the structure near the tip.

Holotype, male.—Daytona Beach, Fla., August 27, 1945, G. T. Riegel.

Genus **Hydroptila** Dalman

This is the most abundant and widespread genus of Hydroptilidae, with species known from every part of the globe. It is interesting that the Nearctic fauna contains many species whose closest relatives are in the Palearctic fauna, and other species which have apparently arisen from Neotropical nuclei of evolving forms. The species described below is of this latter category.

Hydroptila denza, new species

Among some material from Mexico a speci-

men was encountered that is of the general type of *meralda* Mosely, but differs from it in a variety of characters: The claspers are little longer than the subgenital plate, the apex of the tenth tergite is deeply incised, and the apical blades of the aedeagus are wide and swordlike, Fig. 6*A*.

Male.—Length from front of head to tip of wings, 3 mm. Color moderately dark brown, the wings mottled with gray and brown. General structure typical for genus and scent cap ovate. Seventh sternite with a short, sharp apicomesal process. Genitalia as in Fig. 6. Ninth segment projecting freely from eighth segment, its internal portion rounded and only moderately produced, the apicolateral margin bearing a fingerlike lobe which appears sharp and spurlike from ventral view. Tenth tergite with lateral margins sclerotized, mesal portion membranous and deeply incised. Clasper of moderate length, ventral aspect with apex slightly widened, lateral aspect with apex much widened and trianguloid; apicolateral corner projecting as a small sharp point, apicomesal corner slightly angulate and a small sclerotized point just within it. Subgenital plate triangular, over two-thirds as long as clasper, and bearing a pair of setae near apex. Aedeagus, Fig. 6*A*, with base extremely long, extending internally through three full segments of a completely extended specimen; neck bearing a rufflike collar of membranous folds and a slender spiral process which encircles the aedeagus one and a half times; base of apex swollen, the apex beyond this divided into two parts, a long, bladelike, flattened, sclerotized process, and a tapering, straight style which bears the penis tube and which is membranous and corrugated at its base.

Holotype, male.—Hacienda Santa Engracia, Tamaulipas, Mexico, March 9, 1939.

Genus **Neotrichia** Morton

As is true of *Ochrotrichia*, *Mayatrichia*, and a few other genera, additional United States species of *Neotrichia* continue to follow patterns of general structure found in Central American forms. To date these genera are known only from the New World, and their distribution seems to indicate clearly that these genera originated in the Neotropics, and various species are spreading northward following the retreat of the glacial area.

Neotrichia numii, new species

The elongate and triangular claspers and the structure of the aedeagus indicate definite affinities between this species and *digitata* Mosely on the one hand and *collata* Morton on the other. From both this species differs in the extremely long, beaklike process of the subgenital plate, and the very dissimilar sclerotized processes at the apex of the aedeagus.

Male.—Length from front of head to tip of wings, 2.5 mm. Color entirely dark brown, the legs paler. General structure typical for genus. Genitalia as in Fig. 5. Ninth segment having an angulate internal portion, each side ending in a spurlike process; the dorsal portion is fused with the tenth tergite, the lateral portion is large and its apical margin is produced into a low, wide angle. Tenth tergite moderately narrow, rounded at apex and forming a simple, undivided mesal structure projecting above the other apical parts of the genitalia. Clasper elongate, lateral aspect tapering and curved at apex, ventral aspect having a broad, parallel-sided base narrowing suddenly to a short, pointed apex, heavily sclerotized and bearing only a few short setae. Bracteole, Fig. 5*C*, spatulate, pale, and bearing a series of long hairs on its ventral and apical margin, the base of the bracteole short and narrow, the apical portion broad and slightly curved dorsad. Subgenital plate unusually complex; the mesal portion, Fig. 5*B*, ends in a long beak which in lateral view is narrow and sharp, and in ventral view is expanded at apex into a platelike area bearing a hooked lateral process and a pair of mesal setae; this mesal part is joined ventrad with a large, convex lateral sclerite which narrows dorsad and appears to fuse with the inner margin of the tenth tergite. Aedeagus, Fig. 5*A*, elongate, the base tubular and narrowing to a long neck from the apex of which arises a stout spiral process encircling the aedeagus a little more than a complete turn; apex swollen at base, and divided at apex into a sharp spur bearing the penis and a lateral plate that is broad at base, slightly narrower at apex, and almost truncate at tip.

Holotype, male.—Lake George, Colo., in 11-mile canyon of the South Platte River, August 8, 1943, J. A. and H. H. Ross.

Neotrichia vibrans Ross

Neotrichia ranea Denning, Can. Ent. 79: 20. 1947. *New synonymy.*

Further study of this species indicates that there is considerable lateral movement of several parts of the genital capsule, and that this may result in considerable difference of appearance between one specimen and another. The widely expanded condition is shown in my own drawing (Ross, 1938, p. 120, Fig. 29), and a more contracted condition is illustrated by Denning in the description of *ranea*. Dr. Denning has kindly loaned me his type material for study.

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ZOOLOGY.—*An analysis of specific homonyms in zoological nomenclature.*[1]

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In the systematic study of animals, which is the science known as systematics or taxonomy, the scientific names of the animals are at once an essential tool and a source of much confusion and discussion because of their vast number and the complexity of our system of using them. A branch of systematics has grown up which concerns itself entirely with these names and the principles to be used in applying them; this is nomenclature. Its principal aims are to formulate and establish systems under which each species can be given a distinctive name and to provide machinery to insure as great stability or permanence as possible to each of these names.

One of the difficulties which plague the taxonomist in his use of scientific names is the situation that arises when the same name is inadvertently given to two different species of animals. If a name is to be useful in exact science it must always refer to but one species, and always to the same species. Therefore, we cannot permit the use of one name for two or more species, and when duplicate names are found we must provide another name for one of the species. Identical names used for two or more species are called homonyms. They may be further classified by calling the older of the two usages the senior homonym and the younger one the junior homonym.

[1] Received April 2, 1948.

The discovery of homonyms very often results in a change of name for one of the species, and this type of change accounts for a large proportion of the annoying alterations of names that have given taxonomy a bad reputation among biologists. It is thus of special importance to taxonomists to study the problem of homonymy and find a way to protect names from this major source of instability.

The treatment of homonymy of specific names in zoological nomenclature is one of the oldest problems with which the writers of rules of nomenclature have had to deal, and it is one that has not been solved on any universal basis even after 75 years of code-building. It is therefore not unreasonable to reexamine the problem to present a possible new approach.

In the various nomenclatural codes that have been proposed, the treatment of the problem of homonymy differs widely. The reason for this divergent treatment is not clear, except on the assumption that none of them have given real satisfaction. It is therefore believed useful to examine the procedures that have been proposed heretofore and to analyze the requirements of a satisfactory system.

(I) The first method we will examine for dealing with homonyms is that prescribed by the International Rules of Zoological Nomenclature in articles 35 and 36. It is